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THE PRESENT POWER SITUATION IN BUIGARIA

Tables referred to herein are appeaded. \mathcal{J}

The successful fulfillment of the Two-Year Plan is creating favorable conditions for the fundamental rearmament of the Bulgarian economy. Together with the rest of the national economy, the power industry will be revitalized.

Capacity of Power Plants

At the end of 1946, when the Two-Year Plan was shopted, 119 electric power plants with a total capacity of 127,00° kilowatts were in operation in Bulgaria, as follows: 46 hydroelectric power plants, with a capacity of 49,000 kilowatts, for 38 percent of the total capacity; 21 thermoelectric power plants, with a capacity of 63,000 kilowatts, or 50 percent; and 52 Diesel electric power plants, with a capacity of 15,000 kilowatts, or 12 percent.

As the foregoing figures show, thermoelectric power plants predominate, but hydro-electric power plants are also quite important. The Diesel-electric power plants, as a rule, are small plants with an average capacity of about 300 kilowatts and are equipped with many small generators.

In 1947 the following hydroelectric power plants were completed, installed, and par into operation: Koinare, with a capacity of 1,400 milometts; Mezdra (single-phase), capacity 400 kilowatts, and Podem, rated at 120 kilovohes. Also put into operation was the Diesel power plant at G. Sopoza, with a capacity of 1,000 kilowatts. Under 1947 plan, the Diesel power plant at G. Tutrakan, with a capacity of 270 kilowatte, also was pvt into operation.

Thus in 1947 the increase in capacity amounted to only 3,200 kilowatts, or 2.5 percent of the installed capacity. However, the first year of the Two-Year Plan should be regarded as a period of preparation for the development of the power industry, permitting the addition in 1948 of new capacity sufficient to assure a perceptible increase in power production.

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The plan for the addition of new capacity in 1948 provided that the following power plants be put into operation: the Kalin hydroelectric power plant, 4,000 kilowatts; the Toplinka hydroelectric power plant, 700 kilowatts; the expanded Maritsa I thermoelectric power plant, 7,200 kilowatts; the expanded Varna thermoelectric power plant, 5,000 kilowatts; the Vulkan thermoelectric power plant, 4,000 kilowatts; and the Tets Nadezda I line, 12,000 kilowatts.

The total capacity by the end of 1948 will amount to 32,900 kilowatts, an increase of 25 percent.

Thus at the end of 1948 the Bulgarian power industry consisted of 51 hydroelectric power plants, with a capacity of 55,620 kilowatts, or 34.5 percent of the total capacity; 25 thermoelectric power plants, capacity 91,200 kilowatts, or 55.5 percent; and 53 Diesel power plants, capacity 16,000 kilowatts, or 10 percent.

The total installed capacity at that time amounted to 162,820 kilowatts.

Electric Power Production

In 1947 and during the first quarter of 1948, the Bulgarian power industry greatly increased production. The 1947 plan for electric-power production was exceeded by 1.8 percent, while the 1948 plan called for 14.7 percent more than the actual 1947 production (see Table 1).

Important progress was made in Laproving the reliability of plant equipment and in keeping proper load diagrams. However, a production of 3,750 kilowatt-hours in 1947 and a planned production of 3,850 kilowatt-hours in 1948 indicate good reserves.

The 1947 totals show proper emphasis on high production from the hydroelectric plants, which exceeded the plan by 16.7 percent. The contribution of the hydroelectric plants to the total power production rose from 44 percent, as provided by the plan, to 50.5 percent in actual production.

Unfavorable forecasts of precipitation in 1948 somewhat lowered the planned figure for power production in the hydroelectric power plants. However, actual conditions during the first quarter of 1948 were more favorable than expected, and in that year the hydroelectric power plants played a leading role, producing 4,000 kilowatt-hours.

The most important kind of fuel is coal, the use of which is steadily increasing. The Bulgarian power industry is endeavoring to use low-grade local varieties of brown coal and lignite, characterized by high humidity and low calorific value.

In some districts there are unfavorable fuel balances, which necessitates the use of such other kinds of fuel as petroleum, wood, and charcoal.

The data in Table 3 show that electric-power consumption by industry is growing constantly. The 1948 plan provides for a 17-percent increase. Industry, with a total increase of 14.7 percent in electric-power consumption, is outstripping all other types of consumers.

The figures in Table 4 reflect the extraordinary shifts taking place in the Bulgarian economy. Whereas the law on the nationalization of property definitely guaranteed the predominance of the socialistic sector, the private sector, with 30.1 percent in 1947, fell to 5.6 percent in 1948.

Construction of Power Plants and Nets

Simultaneously with the construction of the power plants put into operation under the 1948 plan, the Bulgarian power industry was pressing preliminary work on still larger hydroelectric and thermoelectric power plants. The most interesting of these are: the

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Maritsa II thermoelectric power plant, with a capacity of 66,000 kilowatts; the Respublika (or Perniki II) thermoelectric power plant, capacity 50,000 kilowatts; the enlarged Adreye thermoelectric power plant, capacity 3,000 kilowatts; the Vulkan power plant, capacity 4,000 kilowatts; the Asenitsa hydroelectric power plant, capacity 6,700 kilowatts; the Petroham group of hydroelectric power plants -- Petroham, Byrziya, and Berkovska (these power plants, which will be lined up along the Byrziya River, will have a combined capacity of 25,000 kilowatts); the Rositsa hydroelectric plant, capacity 13,200 kilowatts; the Kitka hydroelectric power plant (at the village of Gorni Lom), capacity 3,200 kilowatts; and the Traycho Kostow hydroelectric power plant (G. Mezdra), capacity 2,110 kilowatts.

An examination of power-plant exploitation in recent years, especially in 1947, reveals a serious obstacle to still better utilization of installed capacity in the inadequate connections among various districts where industrial and intensive agricultural development are taking place. The absence of transmission lines to such districts as Granitond, Pernik, and Sofia is felt especially keenly.

The next plan for the development of the Bulgarian power industry will call for the construction of 100- and 60-kilovolt nets to transmit power to centers of consumption. This project includes the construction of eight power transmission lines -- for example, between Kurilo and Ploydiv and between Pleven and Levskii via Oryachovitsa, 157 and 102 kilometers long respectively.

At the same time work will be undertaken on the construction of five 60-kilovolt power-transmission lines, including a 75-kilometer line between Bol'shoy Iskyr and Sofia. The total length of the 60-kilovolt lines will be 184 kilometers.

In connection with the projected electrification plan, northern and southern Bulgaria will have to be connected by a 110-kilovolt high-tension circuit.

In addition to the 110- and 35-kilovolt lines, 60-, 20-, and 15-kilovolt nets are being planned. Here, in any case, standardization must be observed, as reconstruction otherwise would be very expensive.

The plan also calls for the construction of ten systemic transformer substations with a total capacity of 171,400 kilovolt-amperes. Several of these substations will have a capacity of more than 30,000 kilovolt-amperes. These substations will be key points in the power system, connecting tensions of 110, 60, and 20 kilovolts.

The construction of 15- to 20- kilovolt local transmission lines is progressing more satisfactorily. These distributing nets have been furnished with transformer stations and switch stations.

Of the 1,510 kilometers of transmission lire scheduled to be built in 1947, 1,305 kilometers, or 87 percent, were completed. During 1948, another 1,863.5 kilometers of line we're to have been built.

An important factor in the construction of nets is the rapid construction and activation of transformer plants. While the plan called for 2/1 transformer stations in 1947, actually 354 were finished. Thus the plan was exceeded by 30 percent. These results guarantee that the 1948 construction plan, calling for 370 transformer stations, will be exceeded unconditionally. -- Prof Lybomir Kayrakov, in Planovo Stopanstvo (Planned Economy), Vol II, No II, 1948.

Tables follow.

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Table I. Electric-Power Production, 1947-1943

		1947					1948			
Source of Power	Type of Plant	Plan	A	Actual Production		Plan Fulfillment (%)		Plan		Compared with 1947
		Million Kw-h	<u> </u>	illion Kw-h	\$		<u>M</u> :	illion Kw-h	96	
Water	Hydroelectric	211 4	լ ի	246	50.5	116.7		234	41.5	95
Solid fuel	Thermoelectric	252 5	53	225	k6.0	89.2		310	55.0	138
Liquid fuel	Diesel	1 6	3	17.7	3.5	105		17	3.5	96
Total:		4 80_s 1 <u>c</u> 7 10	.00	448.7	100	101.8		561	1.00	114.7

Table 2. Comparison of Weights of Fuel, Used in Various Thermoelectric Power Plants (In thousands of tons)

Kind of Fue!	Planned Consumption	1947 Actual Consumption	Plan Fulfillment (%)	Yr Plan	1948 Plan per Kv	Comparison with 1947	
Coal	565	515	91	506	140	118	
Charcoal	-	0.22	-	0.21	0.06	96	
Wood	-	3.2		Ω	0.55	66	
Gasoline	5	5.14	103	5.13	1.2	99	
Petroleum	-	0.22	h _	0.1	0.09	180	
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Table 3. Electric-Power Consumption, 1947-1948

		3	.94 9.			1948		Comparison
	Plan		Actual Consumption		Plar Fulfillment (%)	Plan		with 1947
Consumer	Million Kw-h	4	Million Kw-h	_15		Million Kw-h	<u> </u>	
1 dustry	262	54.5	207.4	56	103.2	320	57	117
Etreet lighting	8	1.5	7	1.5	87.5	7	1.2	100
Lomestic uses	115	24	116	23	100.9	130	23	1,12
Power plants (in- cluding losses in the nets)		20	95.2	19.5	100.2	104	15.8	110
Total	480	100	448.7 /s ic7	100	101.8	561	100	114.7

Table 4. Electric-Power Consumption by Basic Social Sectors of Bulgarian Economy

			1947				1946				
	Plan		Actual Consumption		Plan Fylfillment (5)		Yr Plan		Plan per Kv		Comparison with 1947
Sector	Million Kw-h	<u>#</u>	Million Kw-	<u>h</u> 3			Million Kw-	<u>h</u> 3	Million Kw-	h %	
State	133 . 3	27.7	134.6	28.2	101		299.1	53-4	73	52.4	223
Communal	177.2	37.0	176.1	36.6	99.5		196	34.8	47.6	35.5	111
Cooperative	31.6	6.5	29.8	6.1	94		33-5	6.2	٤.9	6.5	106
Private	134.9	28.8	148.2	39.1	108	- E N D -	31.4	5.6	7.2	5.6	23
Total	408 <u>[</u> 61 <u>c</u>]	100	488.7	120	101.8	- 5 -	561 / 51c/	100	136.7	100	114.7
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